

FEASIBILITY STUDY

**NC 152
from I-85/US 601 Interchange
to the proposed US 52 Bypass near Rockwell**

Rowan County

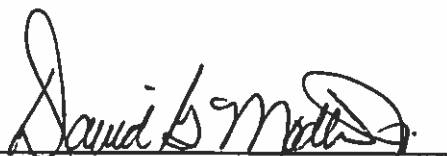
Division 9

FS-9909A

Prepared by
Program Development Branch
Division of Highways
N. C. Department of Transportation



Kim L. So, PE
Highway Planning Engineer



David G. Modlin, Jr., PhD, PE
Head of Feasibility Studies

5/7/99

Date

FEASIBILITY STUDY

NC 152 from I-85/US 601 Interchange to the proposed US 52 Bypass near Rockwell

Rowan County

FS-9909A

I. GENERAL DESCRIPTION

This feasibility study evaluates the potential for the improvement of NC 152 from the I-85/US 601 Interchange to the proposed US 52 Bypass (TIP Project R-2903) near Rockwell in Rowan County.

Two alternates were evaluated in this study. Alternate 1 involves Segments A, B and D described below, and Alternate 2 includes Segments A, C and D. A 100-foot (30.5-m) wide right-of-way with no control of access is recommended for Segments A and B.

Segment A: Provide 8-foot (2.4-m) shoulders (4-foot (1.2-m) paved) along NC 152 from I-85 interchange to SR 2332 (Link Street) in Rockwell (see Figure 1). This segment is approximately 7.9 miles (12.7 km) in length.

Segment B: Improve Market Street and Palmer Road (see Figure 2). Continue the 2-lane, curb and gutter section on Market Street to Palmer Road, and widen Palmer Road to 24 feet (7.3 m) with 8-foot (2.4-m) shoulders (4-foot (1.2-m) paved). The total length of this segment is approximately 1.3 miles (2.1 km).

Segment C: Increase the curb or turning radius in the northwest quadrant of the intersection of Market Street and US 52 (see Figure 2).

Segment D: Increase the curb or turning radius in the southwest quadrant of the intersection of NC 152 and US 52 (see Figure 2).

The preferred alternate is dependent on the location of the proposed US 52 Bypass (TIP Project R-2903). If the selected alternate in R-2903 is close to the Town of Rockwell as shown in Figure 2, then Alternate 1 would be recommended. Otherwise, the recommended alternate for this project would be Alternate 2.

The estimated project costs for the studied alternates are as follows:

	Alternate 1	Alternate 2
Right-of-Way	\$ 9,530,000	\$ 8,610,000
Construction	\$ 8,730,000	\$ 7,650,000
Total	\$18,260,000	\$16,260,000

Alternate 1 would require the estimated relocation of 36 residences and 3 businesses, and Alternate 2 would require the relocation of 37 residences and 3 businesses. **With the desired 100 feet (30.5 m) of right-of-way, Segment A which is the western section of both Alternates 1 and 2, creates 36 residential and 2 business relocations. Records indicate 60 feet (18.3 m) of right-of-way currently exists in this segment of NC 152. During the roadway design process, less than 100 feet (30.5 m) of right-of-way may be determined as adequate and the right-of-way impacts estimated in this preliminary study might be significantly reduced. If during the roadway design study, the recommended shoulder improvements can be contained in the existing 60 feet (18.3 m) of right-of-way, the impacts could be reduced to utility relocation costs which are estimated to be \$950,000.**

This study is not a detailed planning/environmental investigation. A feasibility study presents studied cross-sections for improvements, general corridors of improvements, and estimated costs of construction and right-of-way. This study attempts to identify any potential environmental, permitting, or other observed issues that deserve consideration in the planning and construction stages.

II. NEED FOR PROJECT

This project was requested by Rowan County and the Town of Rockwell.

NC 152 within the study area is classified as a Minor Collector on the Statewide Functional Classification System.

Existing NC 152 within the project limits is generally a 2-lane, 24-foot (7.3-m) wide shoulder section. Low shoulders are found along the section from the I-85 interchange to SR 2332 (Link Street) in Rockwell. Some areas have shoulders that are less than 3 feet (0.9 m) wide.

The project corridor lies within an area that is mostly residential. Commercial establishments are located along the section of NC 152 from Link Street to US 52. Land use along Market Street and Palmer Road is mostly residential except for a mobile home manufacturing facility and a packaging company located on Palmer Road within the study area.

NC 152 has a high volume of heavy truck and manufactured home traffic. Two mobile home manufacturing companies are located in Rockwell. One company is located on Palmer Road, and the other is located on US 52 south of NC 152. Trucks from both companies have difficulty make turning movements at the intersection of NC 152 and US 52 (See Figure 2).

Estimated 1998 average daily traffic (ADT) on NC 152 is between 6000 to 8000 vehicles per day (vpd). In the design year 2025, the traffic volume is estimated to range from 7,800 to 11,800 vpd. The existing traffic on NC 152 is operating at a level of service (LOS) C in most areas, and is anticipated to operate at a LOS D in the design year 2025. Truck traffic is estimated to be 11 percent.

During the period from April, 1995, through March, 1998, there were 159 accidents reported along NC 152 within the project limits. This resulted in an accident rate of 220.28 accidents per 100 million vehicle miles (acc/100mvm) compared to a statewide average of 221.41 acc/100mvm for this type of facility. One fatality and 80 injuries were reported during this period. The predominant types of accidents are the rear-end slow or stop (27%) and angle (20%). Thirteen percent (13%) of all the accidents were due to vehicles running off the road to the right side. By providing full shoulders on NC 152, this type of accident on NC 152 is expected to be reduced.

III. STUDIED IMPROVEMENTS

It is proposed to improve NC 152 from the I-85/US 601 Interchange to the proposed US 52 Bypass (TIP Project R-2903) near Rockwell in Rowan County.

Two alternates were evaluated in this study. Alternate 1 involves Segments A, B and D described below, and Alternate 2 includes Segments A, C and D. A 100-foot (30.5-m) wide right-of-way with no control of access is recommended for Segments A and B.

Segment A

Provide 8-foot (2.4-m) shoulders along NC 152 from I-85 interchange to SR 2332 (Link Street) in Rockwell (see Figure 1), 4 feet (1.2 m) of which would be paved. The existing 12-foot (3.7-m) wide travel lane with the recommended paved shoulder would provide a total of 16 feet (4.9 m) of pavement in each travel direction. The improvement would be adequate to allow manufactured home traffic to stay within the travel lane without hanging over the opposite lane. It would also prevent traffic from running off the road due to low shoulders.

This segment is approximately 7.9 miles (12.7 km) in length. The estimated cost for this segment is \$15,870,000 (\$8,270,000 for right-of-way and \$7,600,000 for construction). **With the desired 100 feet (30.5 m) of right-of-**

way, Segment A creates 36 residential and 2 business relocations. Records indicate 60 feet (18.3 m) of right-of-way currently exists in this segment of NC 152. During the roadway design process, less than 100 feet (30.5 m) of right-of-way may be determined as adequate and the right-of-way impacts estimated in this preliminary study might be significantly reduced. If during the roadway design study, the recommended shoulder improvements can be contained in the existing 60 feet (18.3 m) of right-of-way, the impacts could be reduced to utility relocation costs which are estimated to be \$950,000

Segment B

Improve Market Street and Palmer Road (see Figure 2). Extend the curb and gutter section on Market Street to Palmer Road. The roadway would be 28 feet (8.5 m) wide face-to-face of curbs. Palmer Road from Market Street to a possible alignment of US 52 Bypass would be widened to 24 feet (7.3 m) with 8-foot (2.4-m) shoulders (4-foot (1.2-m) paved). The total length of this segment is approximately 1.3 miles (2.1 km).

Segment B would require no relocation of residences or businesses. The estimated cost for this segment is \$2,190,000 (\$1,090,000 for right-of-way and \$1,100,000 for construction).

Segment C

Increase the curb radius in the northwest quadrant of the intersection of US 52 and Market Street (see Figure 2). The wider curb or turning radius would allow truck traffic coming off Market Street to turn right at the intersection without encroaching on the southbound lane of US 52.

This segment would require the relocation of 1 residence and no businesses. The estimated cost for this segment is \$192,000 (\$165,000 for right-of-way and \$27,000 for construction).

Segment D

Increase the curb radius in the southwest quadrant of the intersection of NC 152 and US 52 (see Figure 2). The wider curb or turning radius would allow truck traffic on US 52 to make the turning movements onto NC 152 without taking up any other lane(s).

This segment would require the relocation of 1 business and no residences. The estimated cost for this segment is \$197,000 (\$174,000 for right-of-way and \$23,000 for construction).

The other two quadrants at the intersection of NC 152 and US 52 do not need further improvements because the eastbound approach on both NC 152 and Market Street have been widened to facilitate turning movements by truck traffic. The section of NC 152 from Link Street to US 52, which is a curb and gutter section, is approximately 30 feet (9.1 m) wide face-to-face of curbs.

The preferred alternate is dependent on the location of the proposed US 52 Bypass (TIP Project R-2903). If the selected alternate in R-2903 is close to the Town of Rockwell as shown in Figure 2, then Alternate 1 would be recommended. Otherwise, the recommended alternate for this project would be Alternate 2.

Alternate 1 would require the relocation of 36 residences and 3 businesses, and Alternate 2 would require the relocation of 37 residences and 3 businesses.

The estimated project costs for the studied alternates are as follows:

	Alternate 1	Alternate 2
Right-of-Way	\$ 9,530,000	\$ 8,610,000
Construction	\$ 8,730,000	\$ 7,650,000
Total	\$18,260,000	\$16,260,000

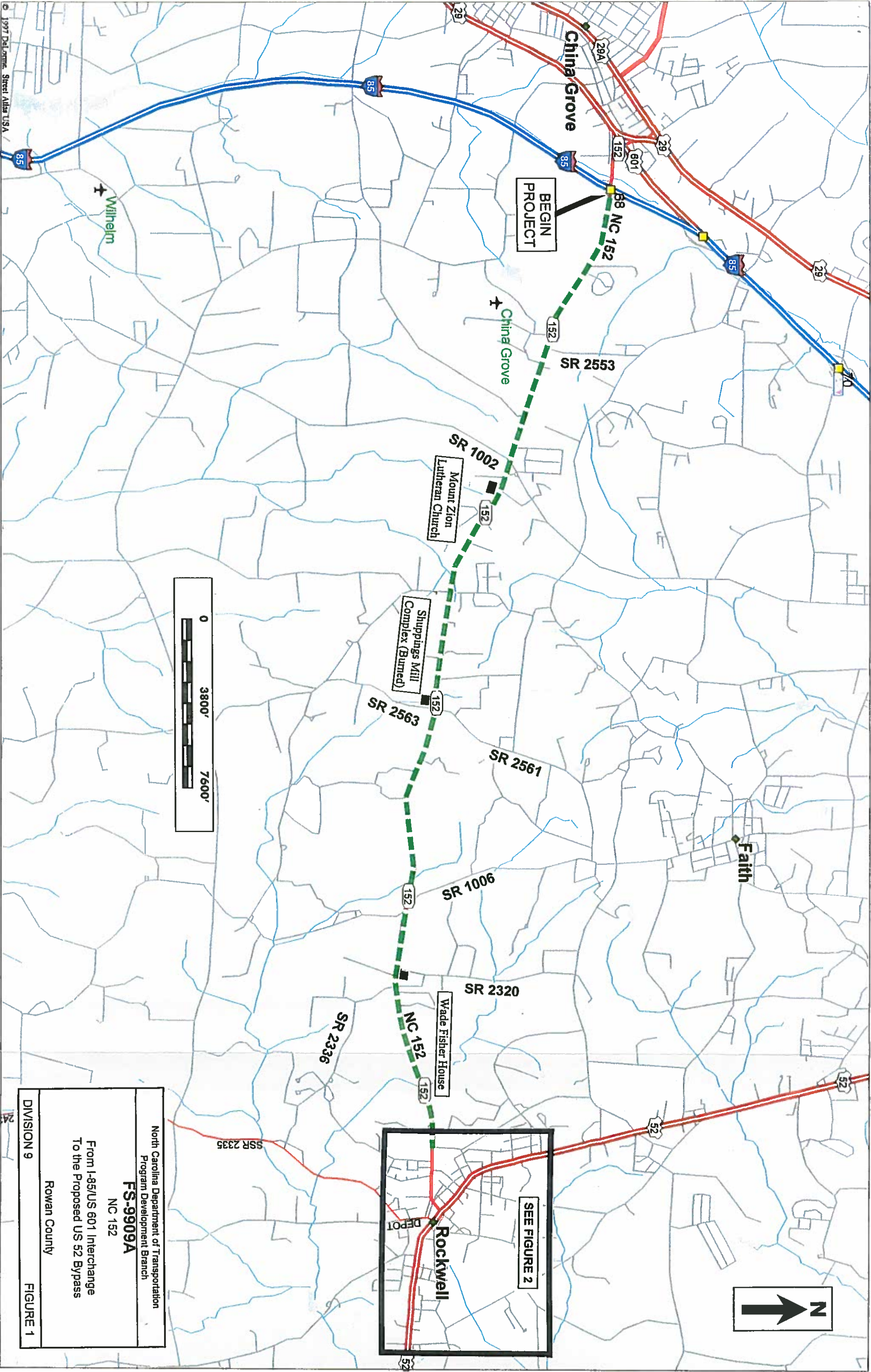
A transportation benefit analysis was not completed for this project because the analysis package provided by the Statewide Planning Branch does not compute the monetary savings for the type of improvements recommended for this project. One of the benefits of this project is the potential to reduce the number of accidents caused by vehicles running off the road due to low shoulders. By improving the intersection of US 52 and NC 152, truck traffic could maneuver through the intersection more smoothly and quickly, which results in time savings that is equivalent to monetary values.

IV. OTHER COMMENTS AND CONCERNS

Three historical significant sites known as Mount Zion Lutheran Church, Shippings Mill Complex, and Wade Fisher House have been identified in the project corridor (See Figure 1). Shoulder Improvements on NC 152 at these locations must be contained within the existing right-of-way to avoid any adverse impacts on these historical significant sites.

Based on maps available at the Department of Environment, Health, and Natural Resources - Natural Heritage Section, no threatened or endangered species were identified in the project corridor.

No recommendation for bicycle accommodations was received from the NCDOT Office of Bicycle and Pedestrian Transportation.



SEE FIGURE 2

Rockwell

DEPOT

North Carolina Department of Transportation
Program Development Branch

FS-9909A

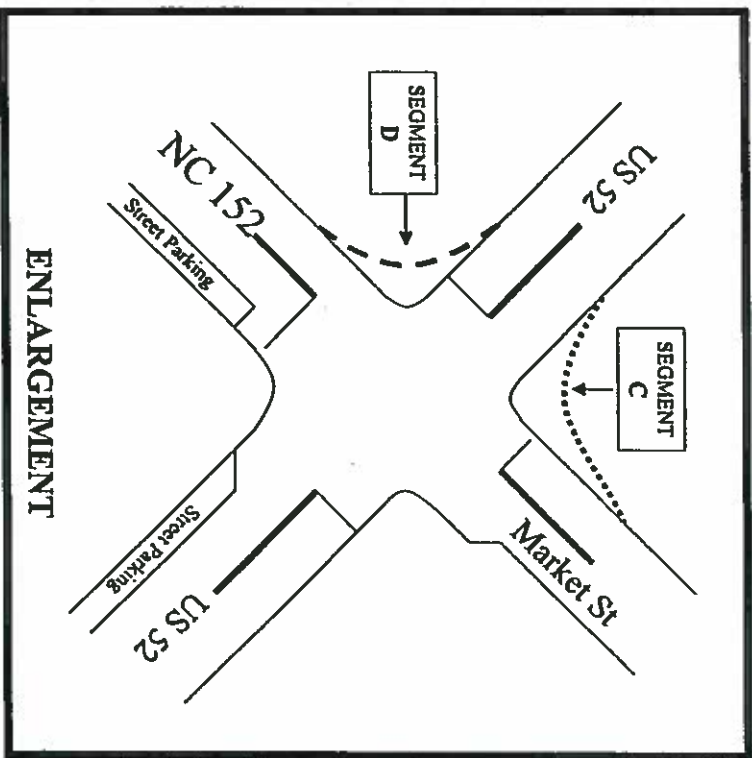
NC 152

From I-85/US 601 Interchange
To the Proposed US 52 Bypass

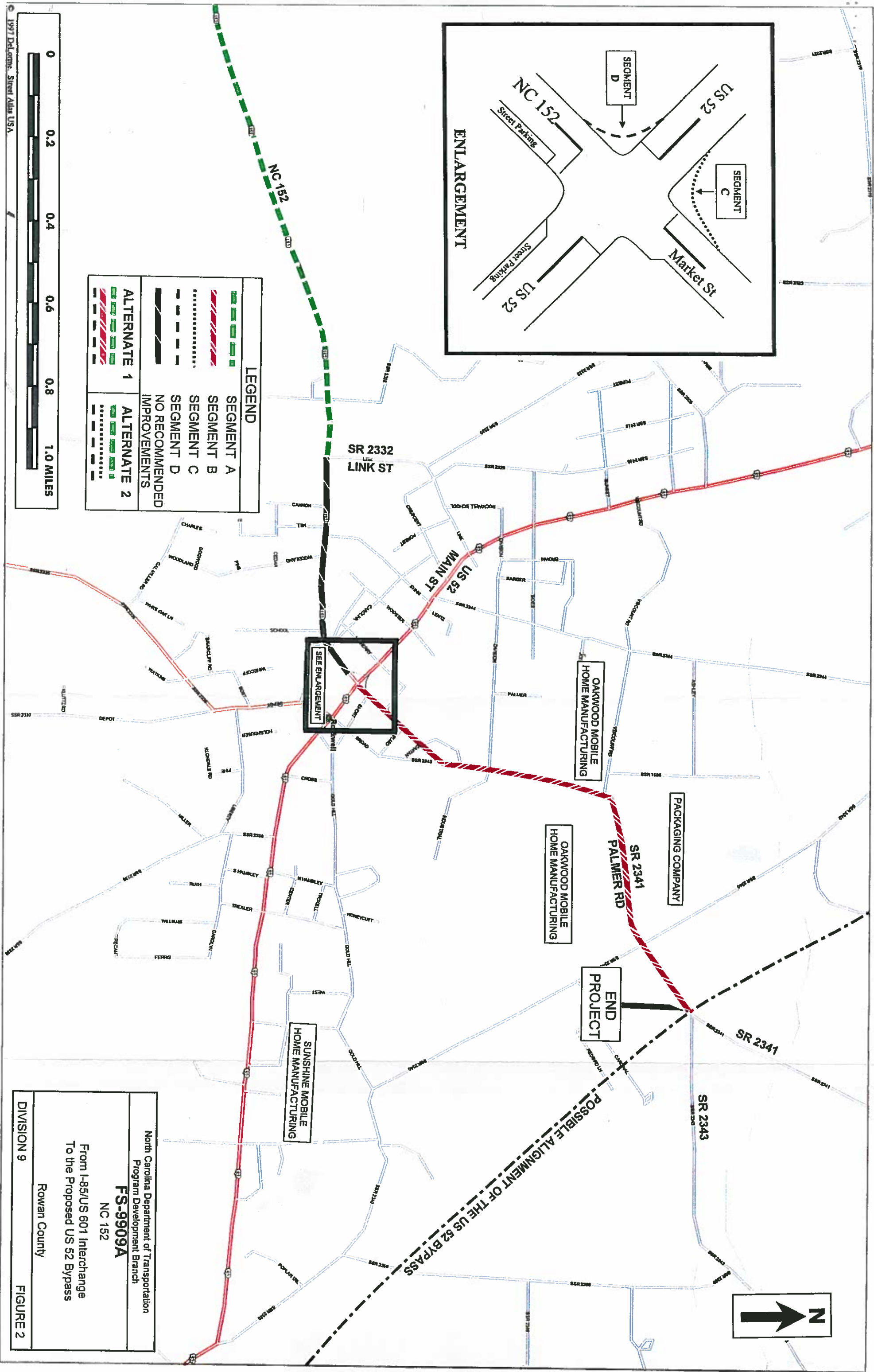
Rowan County

DIVISION 9

FIGURE 1



LEGEND	
	SEGMENT A
	SEGMENT B
	SEGMENT C
	SEGMENT D
	NO RECOMMENDED IMPROVEMENTS
	ALTERNATE 1
	ALTERNATE 2



North Carolina Department of Transportation
 Program Development Branch
FS-9909A
 NC 152
 From I-85/US 601 Interchange
 To the Proposed US 52 Bypass
 Rowan County
 DIVISION 9
FIGURE 2